

## ~Document Camera~

### Rave reviews from KENNEWICK TEACHERS

I'm not a  
techie expert  
but definitely  
a document  
camera lover!

I'm very  
grateful to  
have a  
document  
camera!

It's so  
versatile.

I use it constantly!  
Students love  
showing their work.  
It's a motivating  
factor.

I use it every  
day - I love it!

I love my  
Samsung.  
I would be lost  
without it!

Priceless for  
students  
sharing  
their work.

## INTRODUCTION

Kennewick School District has supported the integration of technology as a tool for teacher instruction and student learning since the mid 1980's. In the fall of 2001, two very creative technology-using teachers received a grant that provided a document camera and a smart board to their classrooms and the results were amazing.

One of the teachers taught her fourth grade students how to use the scoring rubric for math story problems on the Washington Assessment of Student Learning (WASL). She displayed student practice sheets on the document camera. As a class the students scored the work and gave input as to what needed to be improved. The students became so comfortable with this process that they begged to have their own work be selected for display.

Serendipity...

Students started to write neater, label their drawings better, some even drew lines to write on, as they realized these things improved their scores. As a class their WASL math scores were 19 points higher than the previous class.



*An elementary school*

*teacher writes...* The document camera has been one of the most, if not the most, effective pieces of teaching technology I have used. Of course teachers begin by using it as a glorified overhead projector. That's where you start. You've got to walk before you run. Teachers can immediately utilize the document camera as an overhead. And they are immediately comfortable with it that way. What other piece of educational technology can be used effectively the first day?

### *Teachers respond to the question. . .*

#### **How have you used the equipment in relationship to Purpose, Engagement, Rigor, and Results (PERR)?**

**Purpose** = Students are very clear about objectives and daily goals.

**Engagement** = Because the technology is so flexible I am able to keep their attention longer. Students are more engaged when they see their own or other student work on the document camera. I have the ability to guide them in the text by putting the book directly up on the document camera.

**Rigor** = I am able to switch from laptop, video, document camera quickly and spend less time setting things up and transitioning between parts of the lesson. Enhancing my instruction with technology has added rigor to every lesson.

**Results** = I don't know if the equipment is causing student achievement or if my students are just higher achievers than in the past, but this year and last year I noticed better performance on exams and assignments.

Attempting to get challenging students to be authentically engaged has always been difficult. I believe these students are engaged for a longer timeframe due to the interest of learning to use this technology. Being engaged for a longer timeframe allows for more math problems to be solved, and therefore a more rigorous curriculum. These two components have changed some of my purpose in the classroom from just teaching math concepts, to including the teaching of how to use technology.

### **Examples of How Kennewick Teachers Use the Extra Features of the Samsung SDP 900DX & DXR**

#### **DRAW**

The most important thing I do in instruction using the document camera is to display student work for evaluation by the class as well as using the draw features to highlight, underline and write on documents that are displayed.

Use it for WASL preparation. Using student work, we work together as a class to grade and improve student work. The draw feature on the document camera is especially helpful for these activities.

Use the draw features to highlight, underline and write on documents that are displayed.

#### **FREEZE**

Freeze to show the first steps in a math problem, then finish it with the kids so that they can check their work and start correctly.

I use the freeze for my math instruction daily and the kids love it.

Freeze and draw on worksheets, show student work immediately, I couldn't live without my document camera.

#### **SAVING TO A COMPUTER**

Save and show student work on the computer.

Save instructions for review and for students who are absent.

Saving images to a computer saves scanning items.

Save and compare the results from different groups.

If reviewing for a test and students are absent you can capture the notes and print. That way they have a copy of the oral discussion so they can study. You can also print off copies for resource students, who tend to have difficulties taking notes of their own.

## 101 Ways Kennewick Teachers Use Document Cameras

1. The most important use is to demonstrate new material.
2. Show students how to do assigned work. Things are more easily explained when they can see the problems worked out in front of them.
3. Demonstrating 3 dimensional items. Less time spent passing an item around to view.
4. Immediate feedback by displaying student work.
5. Enlarging text for students with vision impairments.
6. Showing and scoring student or sample work.
7. Great to look at all the objects with Food Chemistry, MicroWorlds, Ecosystems. Almost like having a projection microscope!
8. Increased effectiveness in communicating to a large group information from a commonly held document. Example: a page from a book can be viewed by entire group to ensure that all students are on the correct page in the correct place.
9. Model what is expected in the steps included in a math concept.
10. Allows up-close and detailed observations of objects, mechanics of movement, manipulatives, etc. by the entire class.
11. I had a scientist lead 42 students in fish dissection. He was able to clearly demonstrate what the students should do, and point out the organs students needed to locate in their own fish. This would not have been possible with an overhead projector.



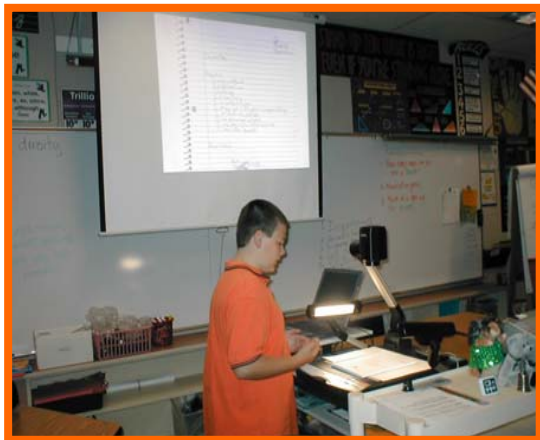
12. Enlarge all math workbook pages, and worksheets. It is invaluable when reading directions, teaching math games and sharing student work.

13. I will save pictures of a student's work that is not created in electronic form and add it to the student's portfolio. In this way, I save time in scanning!
14. Use in staff meetings to explain forms.
15. I do the grades and the daily points on the wall projected from the document camera - everyday to show missing assignments, absences.
16. I use it to display lessons, literature books, group activities, group lessons, speeches, demonstrations, hands on teaching etc.
17. Displaying entry tasks.
18. I do daily writing instruction, math lessons, and science activities.
19. Showing student work. They love to show off their work.
20. In Kindergarten, storybooks are projected on an entire wall. Students love reading words they know.
21. Extemporaneous demonstrations.
22. We have used the document camera to zoom in on parts of a thermometer, and ruler, showing the smallest units and degrees.
23. Demonstrate activities so all the children can see.
24. Reading picture books to the class has been so much better when the students can see/discuss illustrations.
25. Looking over drawings and examples in the book, not having to recreate complicated problems.
26. Decreases prep time (don't have to make overheads, etc.) Has quality imagery.
27. On all the lessons, it focuses the students on what I'm pointing out because they can all see it well, whether it's words, letter combinations, coins and their details, or items from our science liquids and solids kit.
28. Music books, sheet music and other teaching materials are used on the document camera. This is a great tool to help teach music reading skills and literacy too.
29. Math tools (rulers, compasses, calculators) show well on the document camera and the fact that it shows color makes color-coding and maps much more significant.
30. Recently we have been able to zoom in the document camera to show the ingredients on packs of gum we were comparing, as the students did a scientific investigation on the mass of gum after it had been chewed.
31. One of the most important things is for phonics instruction. I use the draw feature to focus on specific things.

32. As math students are working on problems I have them share their work with the class. This immediate feedback enables other students to understand how one student solved a problem and allows a class to review a student's work for accuracy and completeness. This really encourages writing detailed solutions to math problems.
33. Showing while we are doing....it's much better than trying to hold something up for them to see.
34. Display pictures of historical events that we are discussing. I also use it for political cartoons in Current World Problems discussions.
35. Critique student work for Six-Trait Writing.
36. I have taken still shots with the document camera of isopods, crickets, cloud fish eating snail eggs on the walls of a student-built eco-column, and other live creatures.
37. We've looked closely at fish scales, pennies, salmon eggs (and have seen the embryos moving inside!) since the document camera has a nice "zoom" feature.
38. Interactive lessons with students.
39. Students bring objects for "sharing" and place them on the document camera, zooming in where needed.
40. Kindergarten children learn the direction of reading, sight words, and many other important things.
41. Have students use it as they teach the class.
42. We share the student's published books daily. The children's illustrations improve greatly when they know their peers are going to look at their work.
43. Tremendous asset to enhance group discussion and help challenged learners "keep up with the pack."
44. It enables me to show real assignments and objects so that the assignments and lessons are extremely clear.
45. Ease of displaying: an object, a written paper, a handout, a text..... No more burning transparencies and erasing the writing on them in order to use them again.
46. Placing newspaper articles, magazine topics, student work on the document camera to share with the whole class.
47. I use the document camera to display samples of maps, workbook pages, art projects, etc., so that the kids can follow along. In a class where English is not spoken as the native language this reduces the confusion for the children. They are able to successfully attempt the assignment because the document camera provides an effective filter to the barriers presented by giving oral directions.
48. To display graphs and charts or visual performances of student work.
49. To work with "at risk" students who require a significant amount of direct instruction.
50. Show pictures in color. I used it extensively for my housing project.
51. Provide full class immediate feedback about answers to questions.
52. To show 3-D objects: pattern blocks in math from all sides and science experiments.
53. I have used it to demonstrate how to fold a paper crane.
54. Display a variety of examples, shorten lesson planning time, and display student examples.
55. Show documents immediately and appropriately sized for students to see, read and discuss.
56. Show slides.
57. Displaying relevant pictures from many sources.
58. Display, analyze, and edit student work.
59. The most beneficial thing with the document camera has been the ease of placing examples from the book up on the board or graphs that are needed for solving different problems.
60. Use for School Board presentation to share assessment data.
61. Demonstrate how to do hands-on projects in science (constructing objects).
62. For writing: being able to edit much easier during instruction.
63. Visuals to enhance the lecture.
64. I put problems on the white board using the document camera. I also use it to put coordinate planes on the white board for students to use.
65. Students are able to visually see what is written - no messy overhead markers.
66. Zoom in on units of measurement to enlarge and demo how to use 1/16, 1/8, 1/4 etc.
67. Having the visual of student work put up immediately is a huge impact for students and the teacher.
68. Demonstrate how to properly and easily use the compass to make circles of all sizes (4th grade Everyday Math).
69. I use the document camera so all students can see examples, pictures in books, zoomed in pictures of objects, etc. from anywhere in the classroom. Visual learners really benefit from the document camera!
70. Gives all students a bird's eye view.
71. Math problem solving. I freeze the pane and can take the book or materials with me as I walk around the room.



72. Go over tests with students to show correct answers.
73. The document camera enables me to bring a lesson to life with the fact that all students are able to see what is being explained or modeled. Before I would have students gather around me in tiers so students could see the demonstration of math, reading, or science.
74. The most important daily use is for instruction and letting students come to the document camera and "be the teacher."
75. Being able to show student solutions and discoveries to the rest of the class or allow students to show how they got their answers.
76. I use it almost every day for math. It really lends itself to our math lessons because we use so many different types of "math manipulatives."
77. Modeling note-taking.
78. I can easily show how to do a lesson. It also shows what I need them to do and how. I use it when ever they need direction in a subject. It makes it easy for them to follow along during the lesson.
79. It is important to me to be able to display pictures and maps from texts. This camera gives me the ability to show these maps and pictures in color and I can zoom in to show specific areas of interest. I use this everyday in some form to give my students a visual description.
80. Walking students through the steps of an assignment.
81. Put text books on the screen so I can read them while moving around the room.
82. Use as a microscope.
83. I am able to demonstrate how to fill out forms that are specific to my program; this would be very difficult without this equipment.
84. Just being able to display and discuss student work is very powerful.
85. I have shown students different graphs which they were able to read and compare, zooming in on fine print such as the "source" of the graph data, using the document camera.



86. Show small pictures for all to see.
87. I put reading and writing samples on the screen for discussion. It allows me to use the classroom textbook and student work on short notice.
88. Display books for reading, when class sets are not available.
89. The whole class can do an assignment together when I may not have had time to make individual copies.
90. Displaying student work as they relate to WASL rubrics and individual performance.
91. Showing the illustrations when I read books out loud.
92. Display, analyze and interpret student work with the whole class IMMEDIATELY!
93. Displaying emerging work from students as exemplars raises the standard for production for that group.
94. Use as a reward for students. They are excited to write for the class and participate more enthusiastically when I allow them to take part in the instruction (first grade).
95. Reviewing pages out of the book or previewing questionnaires for videos.
96. Instead of having to redraw Geometry sketches I project them onto the white board and then work out the problem. Some of our Geometry sketches can take a lot of time to draw so this is a real time saver. I also put my notes up every day for the students to follow and copy.
97. I can use examples of student work on the spot instead of having to make a transparency. It eliminates the time and expense of making overhead transparencies.
98. As a Library teacher, sharing a story with the students so that they can see more details in the artwork.
99. Show students how to work a math problem, share 3 x 5 cards of WASL examples, and the use of colors when explaining various games or manipulatives.
100. As a science teacher it allows me to show lab set ups, make electronic boards and components more visible.
101. It's probably the best way to teach how to use context clues to determine the meaning of unfamiliar words. The book goes on the camera and the teacher and student can together look at the words around the subject word to determine meaning. The teacher can wander the room to check that every student is learning context skills.

## Fifth Grade Reading

In the fifth grade Open Court Reading series, the students read a non-fiction selection titled "Circles, Square, and Daggers: How Native Americans Watched the Sky." This selection describes circles, squares and daggers used by Native Americans as their earliest form of a calendar. Archeoastronomers have discovered these structures and the author attempts to explain what they look like and how they are used in the reading selection. I found that students did not clearly understand the selection, especially when the author discussed how shadows were used to tell the times of the year. With the class' help and input from the reading selection, we put together a model of both a circle and a square and tested it out with a flashlight to find out if the shadows really worked. The students had a much better understanding of the concept after showing the model on the document camera. Since the neck of the camera folds down, it is easier to get a good angle to show the students where a person would stand in comparison with the square to see where the sun would line up. We also used the document camera as the sun to show how it could line up between two cairns. As we moved the neck of the camera, it showed how the sun moves and where it lines up in the square throughout the day.



## Enhancing Education Through Technology Grant - Teacher Comments

I have truly enjoyed my laptop, document camera and projector. I teach with them EVERYDAY! I don't know how I would get along without them now. They do make teaching a lot more efficient. Any time I need to show something from a book I use the document camera. I can't imagine going back to an overhead. It has engaged students more because they are curious about the set up. My students always comment on how cool or neat the lessons appear.

At the beginning of the lesson, I use the technology as a tool to model using math manipulatives, reading strategies, writing informal outlines for math, reading and writing respectively. As the lesson progresses, students are encouraged to use the technology to demonstrate their own understanding. As a final activity, students that have been successful with the task frequently volunteer their finished work to be presented to the class. The purpose of the lesson is reinforced as many examples are presented, rigor is increased as students move from following the teacher model to becoming the model themselves, and students are engaged as they have a chance to compare their own work to their peer's work.

I know the equipment enables both the students and the teacher to be on task constantly. I believe more students are consistently visualizing the lessons better and with the equipment's capabilities of copying and projecting their work it engages them even more.

I believe students have a better recall because they can visualize the lessons better than before. It also gives them the opportunity to view and discuss each others effort, and provide the chance to be proud of work well done.

The lesson is more purposeful, engaging and rigorous to students when it involves real world examples. I use the equipment to show these real world examples from the Internet or on the document camera. Students are also more engaged when you can use color effectively. Having a document camera instead of just an overhead allows you to use color in your lessons. The faster you can move in a lesson, the more rigorous the lesson will be. Thus the students are much more engaged and involved in the learning process

I am now able to create lessons that use the real world examples my second language learners need. With impoverished second language learners you never know what kind of prior experience they bring to the classroom. Having this technology at my fingertips allows me to tailor each new lesson to the needs of my students.

Motivation always increases achievement because students are excited to learn and do the work. Since the use of technology integration at Westgate, our scores have increased and continue to do so in every grade level.

The technology that I currently have in my room has opened my eyes to the possibilities of teaching. Many teachers can get into a rut. The use of technology has opened many doors to my daily lesson planning. I don't necessarily use the technology every period of the day, but the presence of it has made me re-think how I structure units. I have put more focus upon what my purpose is on each lesson that I prepare.

Since using the technology, there have been strong gains in both my students' district functional level test results and their state WASL test results in reading, writing and math.

Students have an excitement when they are able to use the technology for their assignments. They are motivated to learn and try new things. Students are much more independent learners and self directed.

I use my projector and document camera every minute of every day! When I have the kids working on manipulatives from PowerPoint directions, I can toggle to my document camera with my manipulatives!

I have used the technology for direct reading instruction in the Literacy Lab classes. One example is a lesson on text features. We put the lit text under the document camera and pointed out the table of contents, glossary, index, etc. Then each student was given a content area textbook they would encounter in high school to look for the same features. Students came to the document camera to "preview the text" for their classmates. We also use the document camera to preview a selection before reading by looking at titles, graphics, captions, differences in type size, etc., to make predictions before reading.

## Teacher Comments on Using a Document Camera

I have 32 students in my 5<sup>th</sup> grade class. So...I am teaching to a big group of students. The document camera is the ONLY way I have to create a setting similar to a small group. Students in the back of the room are able to SEE what I am trying to show them. Believe me, when you are showing a 1/8 or 1/16 of an inch on a ruler to students, it is so nice to zoom in so the students can actually see what you are doing.

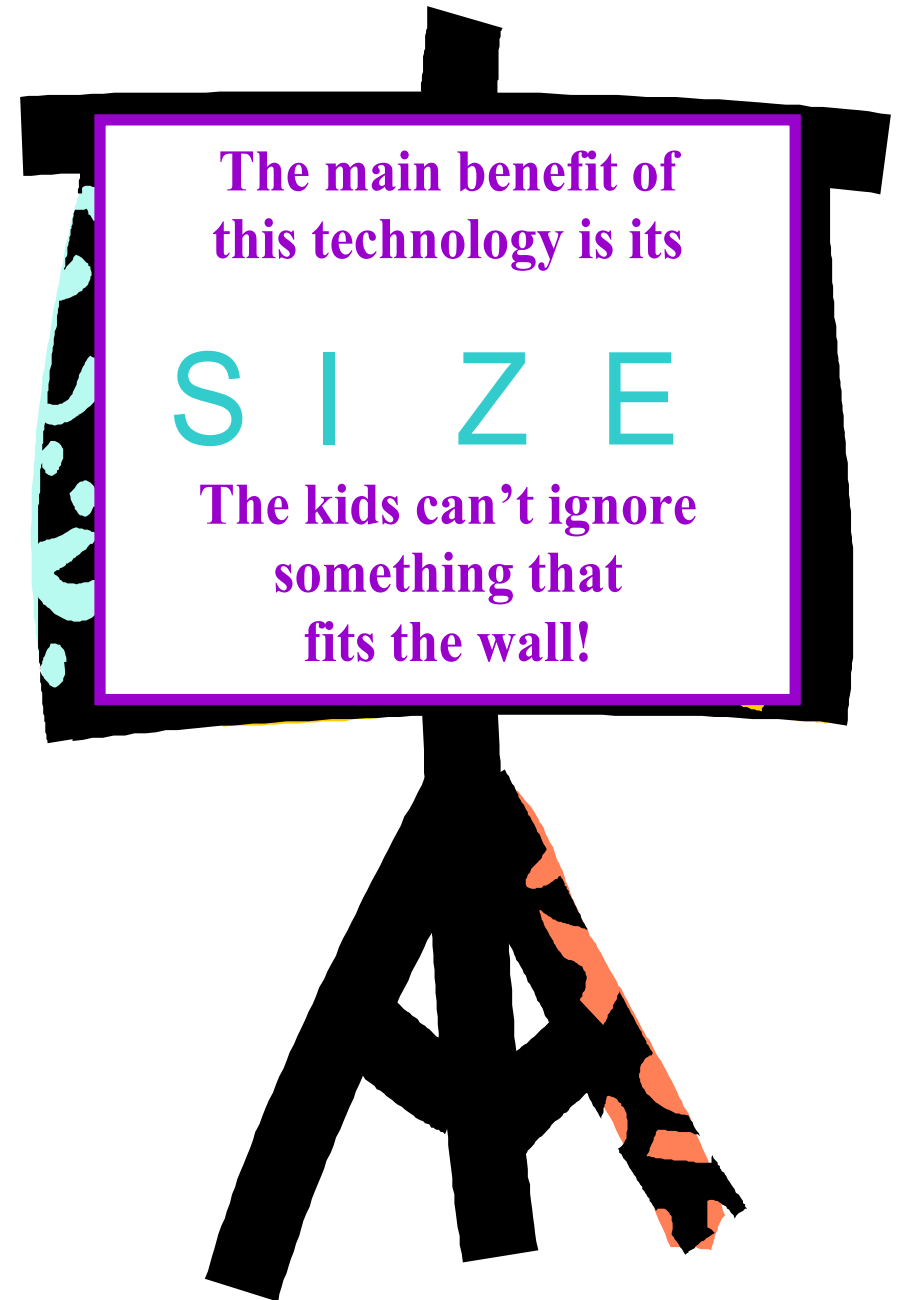
I have been able to teach conclusions for the Science WASL using the draw feature on my Samsung. As a class, we look for the four elements of a good conclusion. Each element is color-coded (using the draw feature) similar to the Step-Up to Writing program our school uses. We underline the four elements. It has been very effective. Students are now begging me to grade their conclusion on the document camera.



Everything I say is visually represented. It has become a critical piece of instructional equipment and I have become a fanatic believer that all teachers should have one. It's that important!

## Kennewick School District Teacher Responses to On-line Survey

	<u>Number of Responses</u>
1. How often do you normally use your document camera for instruction?	
5-7 lessons per day or more	97
3-4 lessons per day	55
2. Do you use the document camera to display student work?	
Yes	176
No	15
3. Do you display three dimensional objects with your document camera?	
Yes	146
No	45
4. Does the document camera improve direct instruction with students?	
Not at all	0
Somewhat	5
Adequately	19
Significantly	169



Contact Information:  
Georgia Talbert, Technology Coordinator  
Kennewick School District; 524 South Auburn Street  
Kennewick, WA 99336 [talbge@ksd.org](mailto:talbge@ksd.org)  
509.222.5016